

Abstract

A collapsible filter element for a transcatheter embolic protection device, the filter element comprises a collapsible filter body of polymeric material which is movable between a collapsed stored position for movement through a vascular system and an expanded position for extension across a blood vessel such that blood passing through the blood vessel is delivered through the filter element. A proximal inlet portion of the filter body has one or more inlet openings sized to allow blood and embolic material enter the filter body. A distal outlet portion of the filter body has a plurality of generally circular outlet openings sized to allow through-passage of blood, but to retain embolic material within the filter body. The distal outlet portion of the filter body in the region of the outlet openings has means for reducing shear stress on blood passing through the outlet openings. The shear stress reducing means includes lead-in and lead-out radiussed portions of the filter body leading to the outlet holes. The porosity of the distal portion of the filter body decreases towards the distal end. A blind portion extends for at least 5% of the length of the body. Preferably there are between 200 and 300 outlet opening with an average diameter of approximately 150 microns.

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